An inaugural diſsertation on Pneumonia Typhoides. or the winter epidemic as it appeared in Washington county Virginia in 1818 & 1819 with a sketch of the climate.

To be submitted to the trustees &
faculty of medicine in the
University of Pennsylvania
For the degree of Doctor of Medicine.
By Mitchell Tate of Virginia

Paſsed March 19th. 1823

March 10th 1823

Virginia is bounded on the south, by a line on the parallel of 36°30" N. L. The county of Washington touches this line. The town of Abingdon is situated near the centre of the county, about sixteen miles north, of the southern boundary of the county, and about the same distance, from the northern boundary of Tenneſsee. It is thus placed in the southwest border of the state. On the north & south, the county is bounded by mountains of great elevation; on the north by the great Clinch mountain, on the south by the Iron, or white top. The elevation of the last, is so great, that no trees, or shrubs grow on or near its summit. These great mountains run nearly parallel to each other, their general course is, from north east to south west. They are distant from each other about twenty miles. The county of Washington is a great valley placed between them: This valley is watered by the three branches of the Holstein. They are called the south, middle, & north, branches or forks, taking their sources from the west side, of what is called, a dividing ridge, seperating the head waters, of the Holstein, from New river, or Kanawa. The streams from the east side, run to the great Kanawa. The branches of the Holstein take their rise, to the east of the county, from numerous springs, situated in the valley. The

tributary streams of each fork, are divided from the others, by an elevated ridge. They take a course towards the south west, gradually converging. The south, & middle forks, unite, in the county about seven miles south of Abingdon. The north fork unites with the others, in the state of Tennessee, & forms the Holstein river, which goes on to meet the Tennessee river. The general aspect of the county is hilly. The soil is placed on a bed of lime stone, & consists of rich mould & clay. Springs of lime stone water are very abundant. The margins of the streams have a large portion of rich bottom land: the soil generally is good, & well calculated for the production, of grass, clover, & bread stuff of every kind. The face of the country, which has not been cleared, is richly covered, by large & beautiful forest trees, & a rich variety of plants, many of which are well known to the botanist. This county is in a very elevated situation, being near to the Allegany mountain; & looking towards the great valley of the Mississippi: distant from the gulph of mexico, more than one thousand miles, & 400 miles from the eastern seabord. This elevation connected with the general mountainous character of the country, has a very great influence on the climate. In such a situation we are to expect sudden & great vicissitudes of temperature. We have frost, occasionally in ~~the~~ every months, except those of the summer.

snow

snow is not unfrequently seen on the mountains, early in october, & may. No meteorological observations have been made in that county that I know of. It is therefore impoſsible for me to give an accurate statement of the mean temperature of the atmosphere. The thermometer ranges, during the summer months at 12 oclock, between 75° & 85° of Farenheits scale; & I have seen it as high as 89°. Fire continues to be agreeable, & even neceſsary untill the middle of June, in the morning & evening, & indeed throughout summer; when there is much rain. A great deal of which falls every year. Vegetation generally commences early in March, but is frequently checked, by frost & snow. About the middle of april, the fruit trees are in full bloom, & before the last of may the forest trees are covered, with foliage more than half grown; early in June they are fully developed, when the whole country, presents an extremely luxuriant appearance, beautifully variegated, by the differance of productions on the mountains, & in the valley. The summer months are tempered with a delightful breeze from the northern mountains, which are of great extent between that county & the Ohio. The fall months are very pleasant & about the 1st of November; on the decline of the leaf, this county exhibits in perfection, all those beauties, which have been so much spoken

of

of, arising from the varied tints of color, produced by the different states, of decline in the foliage. The winter usually commences, about the middle of december; & is marked throughout by great vicissitudes of temperature. Occasionally the whole country is frozen, & the weather extremely cold; But these spells of cold, are generally of short duration, terminating in a thaw, with all its consequences of mud &c. I have never had it in my power to mark the greatest descent of the mercury, during our coldest weather: There is but little snow during the winter, but much rain clearing off with a keen northwest wind. The winter is decidedly the most sickly season, producing catarrh, pleurisy, rheumatism & other inflammatory affections. These diseases continue more or less during the spring: Cholera infantum is frequently met with in the summer of a mild character. Dysentery, is also, very common, occasionally epidemic. This disease is seldom fatal & scarcely ever requires the lancet; the inflammation being moderate. Intermittents are unknown. Remittents are common, in august & september, in certain situations, apparently produced by local sources of miasmata. The disease is generally very easily managed by the common remedies. Pulmonary consumption has become very common,

probably

probably owing to the great vicissitudes of temperature. Scrofula is almost unknown. Goitre is frequently met with in this mountainous district. Cynanche trachealis, is very rarely met with, I have not seen 10 cases in a practice of 15 years. Disease of the liver is not often seen but as a consequence of the use of ardent spirits. Jaundice was Endemic about Abingdon in 1810 & was of a very mild character. I have seen but a single case of calculus in the country. I might go on to enumerate many more diseases met with in that county but deem it unnecessary to say more on the subject.

I will ~~th~~ now give a slight history of the winter epidemic, as it appeared in my practice in the years 1818 & 19.

This disease made its first appearance in Washington county early in January 1818, during a spell of very cold weather. The first case was that of a young man about 20 years of age, a blacksmith, of strong & robust constitution. He complained at first of dullness, lassitude & soreness of all the muscles, with distressing aching, of the whole body, with chilliness; which was soon followed by fever, with pain in the head and side, & considerable nausea. When I first saw him he had been unwell two days. He had been bled once & had taken a dose of salts. He complained now very much of his side & could not take a full inspiration,

without very acute pain; his pulse full, strong, & frequent: skin, very hot, breathing, difficult, with some cough, tongue loaded & tinged yellow, countenance disturbed & heavy. Without hesitation, I took from his arm more blood, about 12 ℥. He became sick & weak from the evacuation with some relief to his head & side. He did not recover suddenly from this state, as persons usually do who have a tendency to syncope &c.; but remained sick & feeble for a considerable time. The force of his pulse was greatly reduced & he continued to have much less pain. That night he took 10 grs of calomel, its operation to be aided by an infusion of senna. A large blister was applied to his side his countenance continuing dull, & heavy. I saw him the next morning; The medicine had operated very well ~~bringing~~ & brought away, a great deal of dark matter. The blister had drawn well, & The pain in his side was considerably relieved. He continued sick at the stomach, countenance dull, skin not so hot, pulse frequent, but not strong. I now gave him an emetic, with an expectation that it would relieve his stomach & the dull appearance of his countenance soften, & relax his skin, preparing the way for diaphoretics. The medicine (tartarised antimony, operated five or six times, throwing off large quantities of bile & mucous. I saw him very soon after the operation of the emetic, he said he was much

better.

indeed he appeared wholly relieved. his countenance lively & rather excited with pleasure, his stomach well, pain of the side & head nearly gone. He wished to eat. a cup of weak tea was allowed him. I returned home. but had been there but a very short time when I received a note, requesting me to visit him again, I found him perfectly delirious, with a very frequent, weak pulse; skin rather cool, & extreme feebleness of the muscles, without the power of deglutition. In this hopeless condition I applied a large blister to his head; & others to the ancles, & sinapisms to the feet. If he could have swallowed I would have given the carbonate of ammonia & wine whey freely. He lived untill the next evening. I was not permitted to examine the body post mortem. The winter passed over, without my seeing any other violent case of the disease. It was seen frequently but in a much milder form, yielding to emetics, purgatives, & Dovers powder, with tepid drinks; & occasionally in protracted cases calomel in connection with the antimonial powder, was given, untill ptyalism was produced. The spring was very cold dry & windy until late in April. I was again sent for to see the brother of the young man, whose case I have given. He was attacked with a severe

chill

chill, & acute pain, low down in the left side of the chest. In this case, perfect reaction had taken place, and the usual symptoms of high inflammation, action excited, strongly marked. Active depletion was promptly used: 20oz of blood were drawn off in the course of 3 hours, but without affording any thing but temporary relief. His pulse was not subdued, or the pain much relieved. I believed at the time that this was a case of pleuritis, & left the patient after giving a purge, with directions to take more blood at short intervals, untill the pain gave way. A large blister was directed to be applied to the side & the antimonial powder to be used. The bleeding was not repeated as directed. He died on the fifth day, with swelled abdomen, heavy & laborious respiration, rattling of mucous in the bronchia, irregular pulse; in short with all the symptoms, indicating effusion, into the cavities of the chest & abdomen. He had been occasionally delirious. His pulse continued active untill an hour before his death; The pain was not relieved untill effusion had taken place. A few days after this I was called to the same neighborhood to see a young man; a waggoner, he was lean & thin but hardy & strong, when in health. He had for-

for.

for a few days previous to his violent attack complained of the ordinary symptoms of catarrh. He was suddenly taken with a chill, which was speedily followed by reaction & fever, with acute pain in the side, & headache, with difficult & painful respiration, so much so that he could scarcely talk. Skin very hot tongue white, pulse chorded or tense, beating 100 in the minute, his face expressing great suffering & dejection. He had been in this situation 8 or 10 hours before I saw him. During this time his mother had endeavored to relieve him by placing his feet in warm water, & administering warm teas, & applying hot salt to the chest, she also used corn, boiled in water & placed hot around his body, for the purpose of producing sweat, But without success. His situation became insupportable from the increase of heat & pain. I felt some embarrassment, from the bad success, which had attended depleting remedies, in the two preceding cases, and was very anxious, to resort to emetics, & sudorifics, for his relief. As these remedies had been so much praised by some, as remedies, for this most relentless disease. pretty active measures to produce a flow of sweat, had been tried, without effects. Before me were all the symptoms, which indicate, acute inflammation, of a serous membrane, covering parts essential to life,

life

I really felt it impossible, to rely on remedies, comparitively feeble, when placed in the scale with bloodletting; as a remedy for acute inflammation. I therefore determined to draw blood for the purpose of procuring, if I could, a temporary remission, of the more violent symptoms. I put a ligature on his arm and took away a large quantity of blood, before any relief was procured, he was not much weakened by the abstraction. I then gave him in divided portions 20 grs of Ipecacuan, & 3 grs of emetic tartar, this was all taken, and warm water freely drank, without even producing nausea. The Ipecacuan was repeated in 5 grain doses every 10 minutes for sometime; the fauces touched with an oiled feather; but every effort was unavailing to produce vomiting, or even perspiration; the medicine opened his bowels. During the afternoon his pain became very urgent, pulse tense and incompressible; he was bled again, with temporary relief. I omitted to mention in the history of the other cases, that the blood after coagulation, was covered with a very dense coat of coagulating lymph: The blood drawn from this man, coagulated firmly, without the buffy coat but was very florid and dense. 15 grs of calomel were now given to him, & castor oil in small doses, every hour, untill he was freely purged. 8℥ of oil were taken before

this

this effect was produced. A large blister was next applied to the thorax. He passed a sleepless night, as was very common in such cases. The blister drew well, but produced very little relief. He was again bled, & the antimonial powders freely given, with tepid drinks. The polygala senaga was also given. in infusion, & the boiled corn again used. But without any other effect, than that of increasing his suffering. I have always found it next to impossible, to induce sweating, when a hot skin, & strong arterial action, are present, by any other means, than cold water, internally & externally used. The external application here would have been highly improper. The tepid bath might have been useful; no conveniences for using it was at hand. This man was bled six times in all, eighty ounces of blood were probably taken. And every auxiliary measure used that I knew of, to relieve him. but without effect, he died on the 7th day of his disease. He was not delirious, his pulse continued active untill a few hours before his death. The usual signs of effusion in to the thorax, were strongly marked. A cold perspiration took place after symptoms of effusion existed. A fourth case occurred in the same neighborhood: & as I examined the body post mortem, I will give the facts. This was a very stout young negro man he had

had

had complained of being unfit for labor, for a few days, before he was taken down. His attack was ushered in with a chill. reaction soon followed, a high fever existed, with acute pain of the right side, quick, & very difficult respiration, attended with great anxiety, a frequent tense pulse, & white tongue. He had been bled & taken a dose of salts before I saw him, with~~any~~out any mitigation of symptoms. I drew from him 20℥ of blood, & again tried the emetic; given in divided portions, and carried to a large quantity, with all the auxilliary means, to provoke emesis; but without effect. His bowels were moved by the emetic articles. Arterial action continuing, very strong; he was again bled 16℥, & 20 grains of calomel given, to be followed, by a solution of Glaubers salt. As the blister in the preceding cases had been useless, I did not use it in this case. The next morning he was no better more blood was taken, to procure some ease for him, & the antimonial powder given, with tepid drinks. In the afternoon he became delirious, pulse small & very irregular, breathing oppressed, abdomen tumid; I considered these symptoms fatal, & nothing more was attempted. he died in the night, 3 days after the attack. The next day the body was examined. On opening the thorax, the lungs appeared distended, protruding from the opening; The pleura covering the lungs & lining

lining

lining the ribs was highly inflammed: all the serous veſsels injected with red blood. The right lung adhered, to the pleura of the ribs, at several points. Very large maſses of coagulating lymph, lay on each lung, & the sacks, of the pleura, contained nearly a quart of bloody serum. The pleura was inflammed throughout its whole extent. The Bronchiae & air cells were filled with their mucous: no appearance of disease in the cavity of the abdomen, no effusion there. This was the last violent case which occured during the spring, the weather became warmer, & the disease gradually disappeared. This diſsection, fully confirmed my opinion, of the inflammatory character of the disease, & I regreted very much that I had not employed the lancet boldly. The general prejudice against venasection was very great. In all the other cases, met with, during the spring; one or two copious bleedings, cured the disease, I did not see a single case of the oppreſsed, or typhus form, of the disease, perhaps the state of the weather had an influence of the character of the disease it was such as predisposes to inflammatory affections of the respiratory organs. The disease again made its appearance, in the last of november, & prevailed throughout the winter, & aſsumed a different character, the action after a few days was typhoid, & the local determinations, to the head, & mucous membrane of the lungs, producing bloody expectoration

expec

The disease generally came on in the following manner. The patient, began to complain, of laſsitude, dulneſs, & some degree of chillineſs, with slight pain of the head, or chest. These symptoms increasing, he was soon confined. The system feebly reacting, the breathing soon became difficult, with increase of pain, attended with cough, & bloody expectoration, with more or leſs congestion in the lungs. Increased heat of the surface, & delirium, soon followed, of moderate character. Delirium was generally preceded by somnolency. patients made but little complaint. The tongue was loaded, & tinged, with yellow, the bowels torpid, pulse, sometimes full, but very compreſsible. The disease was now protracted, & had a second stage. The tongue dry, & covered with a very thick dark crust, increase of delirium the breathing more laborious, dark bloody matter expectorated, black discharges from the intestines, with increased debility of the muscles, the pulse weaker, & more frequent; skin dry & hot, with great restleſsneſs. This form of the disease was very dangerous; if great relief was not obtained in the first stage, death generally occured in the second stage, about the 15th or 20th day. The treatment was generally begun with an emetic, which operated readily, & discharged much bile. They relieved headache, promoted expectoration, & relaxed the skin,

skin

The bowels were next opened by a large dose of calomel, followed, by oil, senna, or salts. The antimonial powder, & calomel, were now given, with tepid drinks. afterwards blisters, to the neck, chest, & lower extremities. The polygala senega, was here very useful, in promoting sweat or expectoration. Opium camphor & Ipecacuan, were sometimes, combined, & given at night, to allay cough, & promote the discharge from the skin.

In the second stage, blisters were applied, to the head; & the carbonate of ammonia, in large doses, frequently repeated, with wine whey, was chiefly relied on, with light stimulating food. The carbonate of ammonia, soon improved the tongue & pulse, & was decidedly superior, to any other article, used in this stage of the disease. Blistered parts, became livid, & were almost insensible. The discharge of very black matter from the lungs, with great stuffing, or engorgement, was generally fatal. effusion into the chest, was very uncommon, in this form of the disease. The serous membranes did not appear to be so much affected. More or less, congestion, constantly existed. I could go on to protract this essay with many more cases but I think it quite unnecessary to say more on the subject

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Philad. March 7th 18[illegible]